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ABSTRACT

The K-12 Gas Station is a national World Wide Web site in Taiwan that serves as the educational portal that provides teachers, parents, pupils, and pubic communities with rich content for all subject matters in grades K-12. The K-12 Gas Station plays a critical role in the efforts to build up a technology-based learning environment to help students gain a robust and in-depth learning of knowledge, skills, and attitude within multiple disciplines. Based on results of an action evaluation, a series of suggestions on the revision of the Web site were made. In order to transform the bulletin board-oriented Web site into a learning community-oriented virtual center, the remodeling builds up new community support features such as resources and information sharing mechanisms, challenge activity platforms, and database servers. All Web users could build learning and teaching resources on the K-12 Gas Station learning community through constructing content that is contributed out of the user's own teaching experience. Remodeling rationale, structure, and functions of the new Web site form the focus of this paper. The paper also offers further suggestions for implementation strategies. (Contains 13 references.) (MES)

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Bridging Individual Experiences to Organizational Knowledge: The Remodeling of a National Learning Resources Center

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Abstract: To help students gain a robust and in-depth learning of knowledge, skills, and attitude within multiple disciplines, the "K-12 Gas Station" plays a critical role in the efforts of building up a technology-based learning environment. Based upon astonishing results of an action evaluation of this website a series of complete and precise suggestions on the revision of the website were made by the authors. To transform the "bulletin board" oriented web site into a "learning community" oriented virtual center, the remodeling builds up new community-support features, such as, resources and information sharing mechanisms, challenge activity platforms, database servers. All web users could build learning as well as teaching resources on the K-12 Gas Station learning community through constructing content which is contributed out of his/her own teaching experience. Remodeling rationale, structure and functions of new website and snapshots of the web forms the focus of this paper. Finally, the authors proclaim further suggestions for implementation strategies.

Background

To meet the needs of rapid changing society in this era, we have to produce technology literate citizens with competitive capabilities. It is a simple but difficult goal for educators facing the fascinating needs. Administrators and engineers seek to make Internet accessible and affordable for every classroom island-wide in Taiwan since 1994. Hence, offering up-to-dated and flexible learning resources becomes a major focus for virtual learning resources center of the Ministry of Education. The Ministry of Education has invested billions in wired campus, courseware, and teacher training for internet-based classrooms in K-12 schools. The "K-12 Gas Station" (http://content.edu.tw/; Figure 1) is the national website as the educational portal which provides teachers, parents, pupils, and public communities with rich content for all subject matters in grades K-12.

In 1997, the Ministry of Education selected over 250 teachers from eighty elementary and middle schools to design and produce web-based materials on the web. The whole project was overseen by a nine-professor steering committee and managed by a leadership team of seven government officers. However, The actual effectiveness or impact of such diligence is now generally considered suspect (e.g., Wu et al, 2000).

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An action evaluation of this project was held between Feb. 2000 and Dec. 2000. The evaluation Data from focus group interviews, questionnaires, e-mail communications, conversation, meetings and observations with over 130 elementary teachers and administrators, government officers as well as scholars revealed that the whole project should make a sharp turn. Discussion among these subjects covered the important issues of vision, quality of web site, structure of the website, functionality of the web, learnability of web materials and capabilities of teachers. The major barrier of of the "K-12 Gas Station" website are vague vision, wimp website, incompetent involvement, rare resources, misjudged needs, to name a few (Jih, 2001).

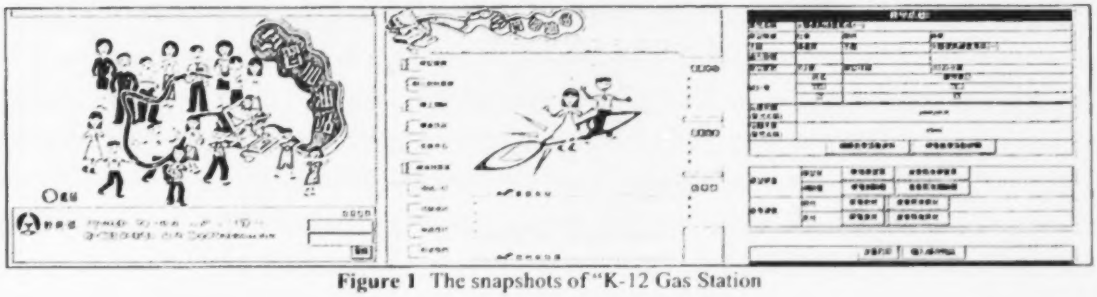

Figure 1 The snapshots of "K-12 Gas Station

Remodeling of the Website

The remodeling of the website is an in-time reaction to the findings of an action evaluation. To solve major problems of current "K-12 Gas Station", the researchers have made complete and precise suggestions on the revision of the website in terms of hardware, platform, courseware, and humanware via learning community perspectives. A comprehensive reform of the structure and function of the website as well as design and development of learning material is under going. This reform has been characterized as quality oriented, deep, total solution, and serious as described at following section.

From Individual Experience to Community Knowledge

Users play as active members of the teacher community is the key difference in the remodeling rationale. An "experience management" architecture was used to take place a "course management" system (Layton, 1999; De Boer, 2000). To transform the "bulletin board" oriented web site into a "learning community" oriented virtual center, the remodeling builds up new community-support features, such as, resources and information sharing mechanisms, challenge activity platforms, database servers (Linn & Burbules, 1993; Riel, 1988; Ryan, 1994). These new features would help building a knowledge base in which internal resources from change agents in the eLearning Project and the Ministry of Education, external resources from teachers, students, and parents, and recreated resources from existing materials are available for re-use in various integrations for different educational usages at a variety of locations. Therefore, all K-12 teachers, the primary users of the web, could build on the K-12 Gas Station learning community through constructing content which is contributed out of his/her own teaching experience.

Web Structure and Functionality

The new K-12 website features a tabled format and pulls all resources together into a single wizard-like interface, assuring web-pages authoring is a set of mouse clicks. The architecture of New website is three tiered. It encompasses a database on the back end and a web server interacting with the New K-12 website application (written in object-oriented Java) in the middle, accessible by a browser on the front end. The new web server utilizes a relational database supported by Microsoft SQL Server and Oracle. Major modules include eMaterials Management module, eClub Communication module, eCourse Searching module, Promotion Activity module, Online Voting module, Community Management module, Performance Assessment module, Information Broadcasting module, Monitoring module, and Member Management module (Figure 2).

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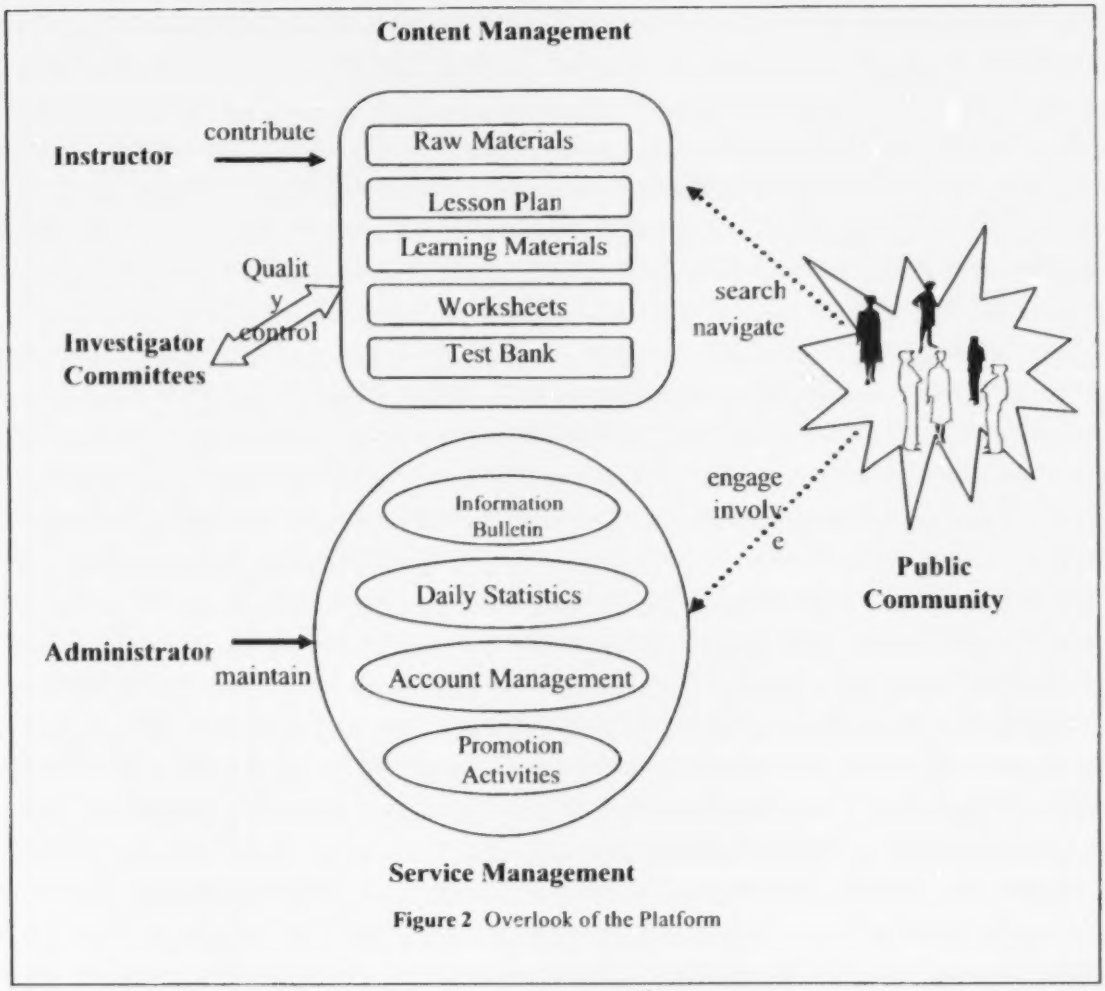

Figure 2 Overlook of the Platform

Through easy-to-use course Web sites, instructors, and instructional designers can make learning materials available to students anytime and anywhere. Following core features and functionality are included in the website:

- Community-building and organizational management
- Lesson/course development and management tools
- Communication and collaboration capabilities
- System/website (remote) management
- Relational database at the domain and/or topic management level.
- Content can be authored on PCs running Windows 95/98/NT
- Standard XML for content creation
- No HTML knowledge required to develop course/quiz material
- Multiple assessment methods (cf., multiple choice questions, True\False questions, Matching questions, Short answer questions, and Essay questions with multimedia format) can be created\scored with platform's authoring templates
- Question database for management of test questions
- Reporting features for test questions
- Investigating stage for quality control before making any materials live to students
- Automated information broadcasting
- User access and progress data available

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Follow simple, step-by-step process, contributors upload eContent items directly through a form-based interface or incorporate existing instructional content by uploading the files/folders into the web site (Figure 3). The system will then create folder structures to organize content automatically. A variety of uploading file formats (for instance, Microsoft Office, Adobe Acrobat PDF, HTML, digital images, digital audio files, digital video files, Flash, Shockwave, Authorware, etc.) are supported by the server system with XML format architect.

Teachers, students, parents, faculties, administrators, subject matter experts, community members and visitors are members of the virtual community. All users can see news, events, activities, and ranking list from multiple eCourse in one aggregated view. They also could view a comprehensive material listing and browse viewer-accessible courses through the course catalog.

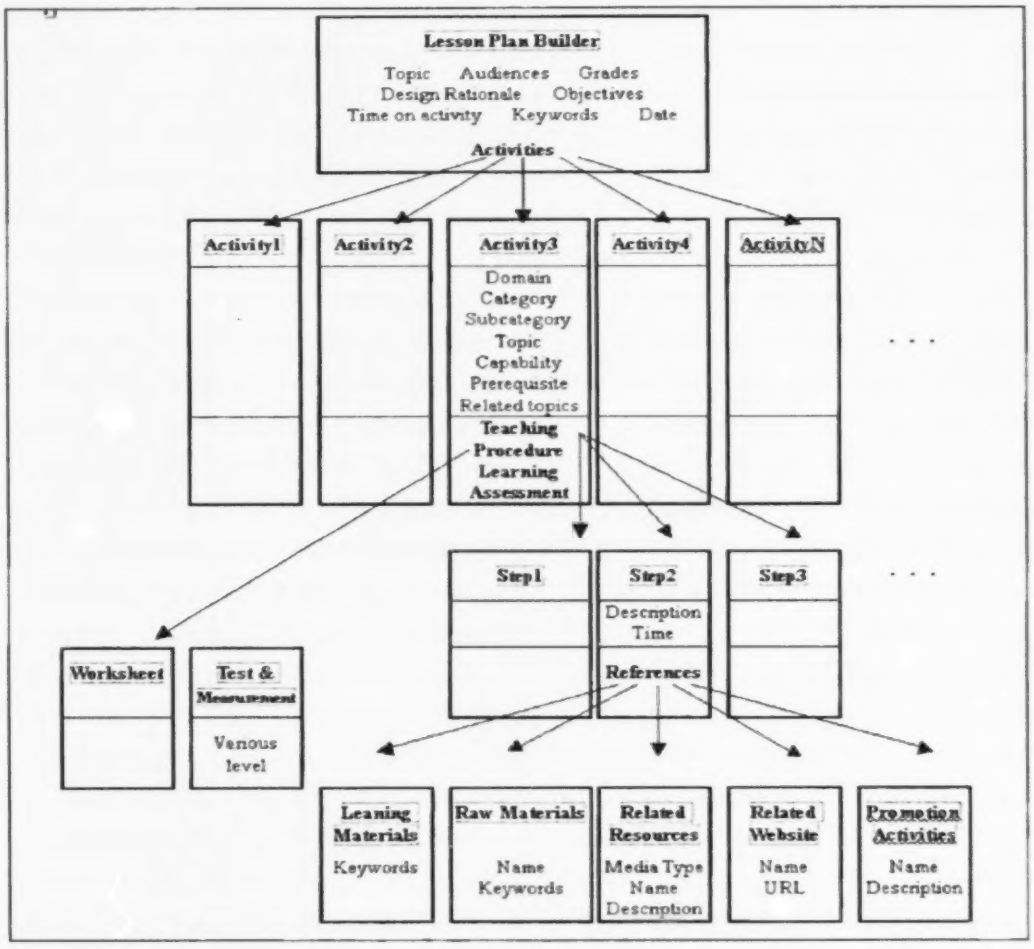

Figure 3 The Process of Lesson Plan Builder

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Conclusion and Future Work

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn." *--Alvin Toffler*

No web site is perfect, but some get closer. The remodeling of K-12 Gas Station is a remarkable reform for the computer-based education in Taiwan. However, designing and developing a better even perfect virtual leaning environment is not enough to guarantee the success of the effectiveness and learnability of e-materials on the web. Pupils as well as teachers could benefit from technology-based learning environment when technology is well planned, properly integrated with learning processes, and fully supporting students as they actively engage in constructing an integrated understanding (Bialo & Sivin, 1990 ; Kearsley, 2000).

Teachers, administrators, parents, and community professionals, have a vital role to play in educational reform. They need the following supports: need a transformation model rather than a transmission model, need pedagogical strategies, need appropriate infrastructure and computer resources and need to model strategies, give guidance and feedback, allow for revision (Krajcik, 2000). It is only when we make explicit use of new natures of learning technology that the new media would add multiple value to human learning of any subject. Many challenges to effective design remain in quality rich learning environments (Jonassen, 2000; Jonassen et Al., 1998).

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Reference

Bialo, E., & Sivin, J. C. (1990). *Report on the effectiveness of microcomputers in schools*. Washington, DC: Software Publishers Association.

De Boer, W. F. (2000). *Decision support for e-learning flexibility and enrichment*. Internal report, Faculty of Educational Science and Technology, University of Twenty, Enschede, Netherlands. Cited in B. Collis (2001). Linking organizational knowledge and learning. Paper presented on the 2001 EDMEDIA Conference, AACE. June 25-30, 2001, Tampere, Finland.

Jih, H. J. (2001). *A Rich Learning Environment Is Yet To Come: An Action Evaluation on a National eLearning Project for Elementary Education in Taiwan*. Paper presented on the 2001 EDMEDIA Conference, AACE. June 25-30, 2001, Tampere, Finland.

Jonassen, D. (2000). *Mindtools for critical thinking in schools*. Columbus, OH: Prentice Hall.

Jonassen, D. et al. (1998). *Learning with technology: A constructivist perspective*. Upper Saddle River, HJ: Merrill-Prentice Hall.

Kearsley, G. (2000). *Online education: Leaning and teaching in cyberspace*. Belmont, CA: Wadsworth/Thomson Learning.

Krajcik, J. S. (2000). Advantages and challenges of using the World Wide Web to fosters sustained science inquiry in Middle and High school classrooms. Keynote speech at the *Symposium on the Effects of the Internet on Education* (pp.23-32). October 10~16, Taiwan Normal University, Taipei, Taiwan.

Layton, W. (1999). *Electronic performance support systems and knowledge management: The merging ground*. University of Brighton, UK. Available via the WWW at http://www.boyblue.freeserve.co.uk/wjlonline/dissertation2_files/content.html (10 April 2001)

Linn, M. C., & Burbules, N. C. (1993). Construction of knowledge and group learning. I. K. Tobin (Ed.), *The practice of constructivism in science education*. Washington, DC: American Association for the Advancement of Science.

Ministry of Education (2000). *The Learning Resources Center on the Web*. Available via the WWW at Http://content.edu.tw. (10 July 2001)

Riel, M. (1988). Learning communities through computer networking. In J. Greenno & S. Goldman (Eds.), *Thinking practice in math and science learning*. New Jersey: Lawrence Erlbaum Associates.

Ryan, S. (1994). The emergence of learning communities. In K. T. Wardman (Ed.), *Reflections on creating learning organizations* (pp.95-105). Cambridge, MA: Pegasus Communications.

Wu, T. S. et al. (2000). Efforts beyond the computer classroom (You zi xun jiao yu ji chu jian she ji hua kuo da nei xu fang an tan qi). Panel Discussion on the Impact of Networks on Campus, Proceedings of the 2000 Taiwan Area Network Conference, pp.4-1~4-16, Tainan, Taiwan. Available via the WWW at http://www.ncku.edu.tw/TANET2000. (29 December 2000)

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